

Dosimeter Designation: InLight - LDR Model 2

A. Technical Description:

The InLight -LDR Model 2 badge is designed for personnel monitoring of the whole body. The badge consists of a plastic holder (cover and sub carrier), which snaps shut to hold a dosimeter (case and slide), Figure 1.

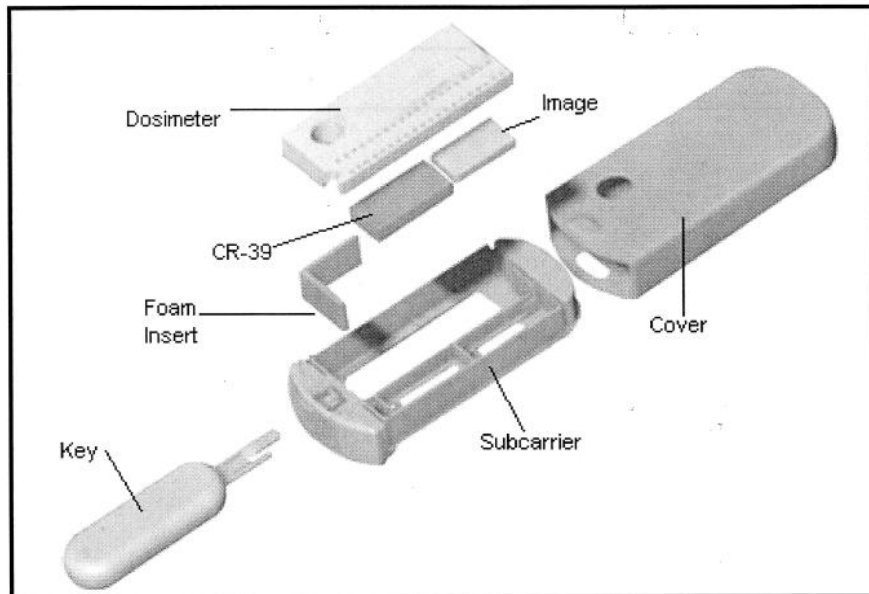


Figure 1...InLight -LDR Model 2 Badge

The dosimeter consists of a case that contains metal and plastic filters and a plastic slide containing that contains detector elements, Figure 2. The detector element is a layer of Al_2O_3 sandwiched between two layers of polyester for a total thickness of 0.3 mm. Optically Stimulated Luminescence (OSL) is the method of analysis applied to the detector.

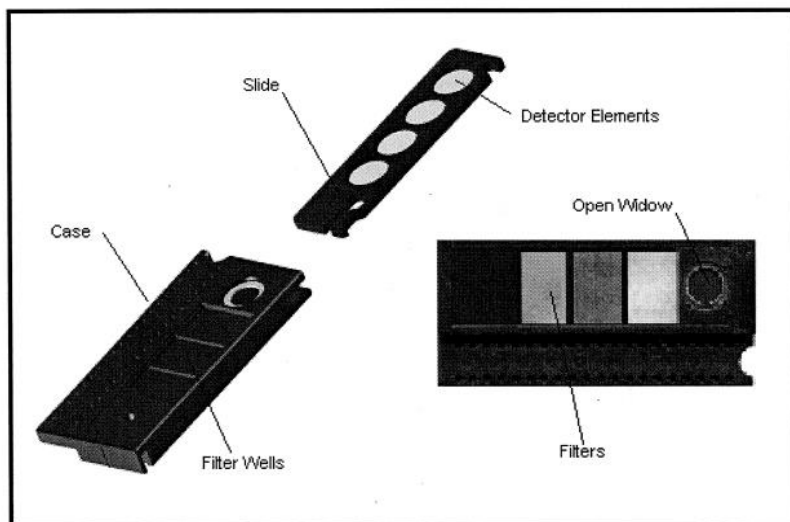


Figure 2...InLight Dosimeter

B. Holder Description:

Size: Rectangular design 6.3cm X 3.8 cm X 0.9cm thick
Constructed of PVC plastic

C. Dosimeter:

Size: Rectangular design 5cm X 2.4cm X 0.6cm thick
Constructed of polystyrene plastic

FRONT							
Dosimeter Element	Density (g/cm ³)	Thickness (mm)	Thickness (10 ⁻³ in)	Thickness (mg/cm ²)			
				OW	Plastic	Cu	Al
Plastic Cover (PVC)	1.406	0.51	20		71.42	71.42	71.42
Label (polypropylene)	0.900	0.05	2	4.50	4.50	4.50	4.50
Label (flexo film varnish)	0.930	0.03	1	2.36	2.36	2.36	2.36
2 mil Polyester Beta Window	1.260	0.05	2.00	6.40			
Case Window	2.700	0.01	0	3.00			
Plastic Filter Polyester	1.260	0.70	28		88.20		
Cu	8.960	0.40	16			358.40	
Al	2.690	0.70	28				188.30
Case Plastic Polystyrene	1.060	0.90	35		95.40	95.40	95.40
Polyester Substrate	1.260	0.10	4	12.60	12.60	12.60	12.60
Total				28.86	274.49	544.69	374.59

BACK							
Dosimeter Element	Density (g/cm ³)	Thickness (mm)	Thickness (10 ⁻³ in)	Thickness (mg/cm ²)			
				OW	Plastic	Cu	Al
Plastic Cover (PVC)	1.406	0.51	20	71.42	71.42	71.42	71.42
Polyethylene Carrier	0.940	0.50	20	47.00	47.00	47.00	47.00
Case Window	2.700	0.01	0	3.00			
Plastic Filter Polyester	1.260	0.70	28		88.20		
Cu	8.960	0.40	16			358.40	
Al	2.690	0.70	28				188.30
Case Plastic Polystyrene	1.060	0.60	24		63.60	63.60	63.60
Polyester Substrate	1.260	0.10	4	12.60	12.60	12.60	12.60
Total				134.02	282.82	553.02	382.92

D. Identification:

The front face of the dosimeter holder is printed with the wearer name, series code, account name and/or wear date. Each dosimeter packet has an identification number.

E. Analysis Equipment:

Landauer manual and automatic InLight (OSL) readers consisting of a LED stimulation array, photon-counting system, and associated fixtures.

F. Detection Capabilities:

- a. Photons (X and gamma rays) with energies above 15 keV nominally: 1 mrem to 1000 rem.
- b. Beta particles with energies greater than 0.150 MeV: 20 mrem to 1000 rem.

